Note: The disclaimer on the first worksheet applies to all tables in this workbook

Rig Manufacturer :	E.G.T.	Rig Type :	VD110
	Operation mode:	Drill Rig	
Completed by: R. Savi	21/02/2018	Checked by:	

Main Components :

	Item	Mass (kg)	Moment arm (m)	Moment (kNm)
UPPER WORKS	Mast Assembly	850	1,56	12,97
				0,00
				0,00
				0,00
				0,00
				0,00
				0,00
				0,00
				0,00
LOWER WORKS	Base Machine	1820	-0,31	-5,46
				0,00
				0,00
				0,00
				0,00
				0,00
ROPE / KELLY / CHAIN SUSPENDED EQUIPMENT				0,00
	Rotary head with trolley	630	2,01	12,39
				0,00
				0,00
				0,00
COUNT.	Counterweight	0	0,00	0,00
				0,00
				0,00
OTHER	None	0	0,00	0,00
				0,00
				0,00

Main Components Totals

	Mass (kg)	Moment arm (m)	Moment (kNm)
UPPER WORKS	850	1,56	12,97
LOWER WORKS	1820	-0,31	-5,46
ROPE / KELLY / CHAIN SUSPENDED EQUIPMENT	630	2,01	12,39
COUNTERWEIGHT	0	0,00	0,00
OTHER	0	0,00	0,00
TOTAL	3300	0,61	19,89

Tracks

Track bearing length (m)	1,4		
Track pad width (m)	0,23		
Distance between centrelines of tracks (m)	0,90		

Front Foot Pads

Pad Bearing Area (m^2)	0,83	Actual Dimensions	0,2 dia + 0,487x0,47 foot
Pad Maximum Loading (kN)	60,00	Actual Shape	round plus square
Pad Moment Arm (m)	1,55		

Rear Foot Pads

Pad Bearing Area (m^2)	0,31	Actual Dimensions	0,2 dia
Pad Maximum Loading (kN)	45,00	Actual Shape	round
Pad Moment Arm (m)	-0,78		

Forces

Maximum Extraction Force (kN)	60,00		
Maximum Penetration Force (kN)	20,00		
Maximum Auxillary Force (kN)	0,00	Auxillary Force Moment Arm (m)	0,00

Notes

flat ground required
mast foot on the ground while drilli
vertical mast while drilling

E.G.T. VD110	Weight (kg) / Load (kgf)	Distance to CL rotation (m)	Horizontal moment (kNm)
Lower Works	1820	-0,306	-5
Counterweight	0	0,000	0
Upper Works	850	1,555	13
Other	0	0,000	0
Rope / Kelly / Chain Suspended	630	2,005	12
Machine Weight (kg)	3300	0,615	20
Auxiliary Line (kgf)	0	0,000	0
Net Extraction Force (kgf)	0	2,005	0
Net Penetration Force (kgf)	0	2,005	0
Front Foot Pads Loading (kgf)	0	1,550	0
Rear Foot Pads Loading (kgf)	0	-0,782	0
Others	0	0,000	0
Track Total Loading (kgf)	3300	0,615	20

	Force (kN)	Max. (kN)	Foot Pad Area (m2)
	0,00	0,00	
	0,00	60,00	
	0,00	20,00	
	0,00	60,00	0,830
	0,00	45,00	0,314
Track Bearing Length (m)			1,400
Track Width Centres (m)			0,900
Track pad width (m)			0,230

Mode : Drill Rig **Standing**

Relative Angle - Upper Body and Tracks (degrees)	Bearing pressure at front of L.H. track (kN/m^2)	Bearing pressure at rear of L.H. track (kN/m^2)	Bearing pressure at front of R.H. track (kN/m^2)	Bearing pressure at rear of R.H. track (kN/m^2)	Max Track loading dimensions ecc (m)	Max Track loading dimensions Bearing Len. (m)	Transformation from triangular or trapizoidal to an equivalent rectangular pressure distribution under track maintaining the load centriod Equivalent Bearing L (m)	Equivalent Bearing Q (KPa)
0	549	0	549	0	0,615	0,256	0,171	412
3	505	0	582	0	0,614	0,259	0,173	437
6	453	0	604	0	0,611	0,266	0,178	453
9	397	0	612	0	0,607	0,279	0,186	459
12	340	0	609	0	0,601	0,297	0,198	457
15	285	0	597	0	0,594	0,319	0,213	448
20	204	0	562	0	0,577	0,368	0,245	421
Front Foot Pads Equivalent Length (m)and Bearing Pressure (kN/m^2)							3,608	0
Rear Foot Pads Equivalent Length (m)and Bearing Pressure (kN/m^2)							1,365	0
						Maximum Equivalent Design Values	0,186	459
						BRE LOAD CASE (1 or 2)		1

Auxiliary Line Force OK
Extraction Force OK
Penetration Force OK
Front Foot Pad Force OK
Rear Foot Pad Force OK

E.G.T. VD110	Weight (kg) / Load (kgf)	Distance to CL rotation (m)	Horizontal moment (kNm)
Lower Works	1820	-0,306	-5
Counterweight	0	0,000	0
Upper Works	850	1,555	13
Other	0	0,000	0
Rope / Kelly / Chain Suspended	630	2,005	12
Machine Weight (kg)	3300	0,615	20
Auxiliary Line (kgf)	0	0,000	0
Net Extraction Force (kgf)	0	2,005	0
Net Penetration Force (kgf)	0	2,005	0
Front Foot Pads Loading (kgf)	0	1,550	0
Rear Foot Pads Loading (kgf)	0	-0,782	0
Others	0	0,000	0
Track Total Loading (kgf)	3300	0,615	20

	Force (kN)	Max. (kN)	Foot Pad Area (m2)
	0,00	0,00	
	0,00	60,00	
	0,00	20,00	
	0,00	60,00	0,830
	0,00	45,00	0,314
Track Bearing Length (m)			1,400
Track Width Centres (m)			0,900
Track pad width (m)			0,230

Mode : Drill Rig — Travelling

Relative Angle - Upper Body and Tracks (degrees)	Bearing pressure at front of L.H. track (kN/m^2)	Bearing pressure at rear of L.H. track (kN/m^2)	Bearing pressure at front of R.H. track (kN/m^2)	Bearing pressure at rear of R.H. track (kN/m^2)	Max Track loading dimensions ecc (m)	Max Track loading dimensions Bearing Len. (m)	Transformation from triangular or trapizoidal to an equivalent rectangular pressure distribution under track maintaining the load centriod: Equivalent Bearing L (m)	Equivalent Bearing Q (KPa)
0	549	0	549	0	0,615	0,256	0,171	412
3	505	0	582	0	0,614	0,259	0,173	437
6	453	0	604	0	0,611	0,266	0,178	453
9	397	0	612	0	0,607	0,279	0,186	459
12	340	0	609	0	0,601	0,297	0,198	457
15	285	0	597	0	0,594	0,319	0,213	448
20	204	0	562	0	0,577	0,368	0,245	421
Front Foot Pads Equivalent Length (m)and Bearing Pressure (kN/m^2)							3,608	0
Rear Foot Pads Equivalent Length (m)and Bearing Pressure (kN/m^2)							1,365	0
						Maximum Equivalent Design Values	0,186	459
						BRE LOAD CASE (1 or 2)		1

Auxiliary Line Force OK
Extraction Force OK
Penetration Force OK
Front Foot Pad Force OK
Rear Foot Pad Force OK

E.G.T. VD110	Weight (kg) / Load (kgf)	Distance to CL rotation (m)	Horizontal moment (kNm)	Force (kN)	Max. (kN)	
Lower Works	1820	-0,306	-5			
Counterweight	0	0,000	0			
Upper Works	850	1,555	13			
Other	0	0,000	0			
Rope / Kelly / Chain Suspended	630	2,005	12			
Machine Weight (kg)	3300	0,615	20			
				Force (kN)	Max. (kN)	Foot Pad Area (m2)
Auxiliary Line (kgf)	0	0,000	0	0,00	0,00	
Net Extraction Force (kgf)	0	2,005	0	0,00	60,00	
Net Penetration Force (kgf)	0	2,005	0	0,00	20,00	
Front Foot Pads Loading (kgf)	0	1,550	0	0,00	60,00	0,830
Rear Foot Pads Loading (kgf)	0	-0,782	0	0,00	45,00	0,314
Others	0	0,000	0	Track Bearing Length (m)		1,400
Track Total Loading (kgf)	3300	0,615	20	Track Width Centres (m)		0,900
				Track pad width (m)		0,230

Mode : Drill Rig Handling

Relative Angle - Upper Body and Tracks (degrees)	Bearing pressure at front of L.H. track (kN/m^2)	Bearing pressure at rear of L.H. track (kN/m^2)	Bearing pressure at front of R.H. track (kN/m^2)	Bearing pressure at rear of R.H. track (kN/m^2)	Max Track loading dimensions: ecc (m)	Max Track loading dimensions: Bearing Len. (m)	Transformation from triangular or trapizoidal to an equivalent rectangular pressure distribution under track maintaining the load centroid — Equivalent Bearing L (m)	Equivalent Bearing Q (KPa)
0	549	0	549	0	0,615	0,256	0,171	412
0	549	0	549	0	0,615	0,256	0,171	412
0	549	0	549	0	0,615	0,256	0,171	412
0	549	0	549	0	0,615	0,256	0,171	412
0	549	0	549	0	0,615	0,256	0,171	412
0	549	0	549	0	0,615	0,256	0,171	412
0	549	0	549	0	0,615	0,256	0,171	412
Front Foot Pads Equivalent Length (m)and Bearing Pressure (kN/m^2)							3,608	0
Rear Foot Pads Equivalent Length (m)and Bearing Pressure (kN/m^2)							1,365	0
Maximum Equivalent Design Values							**0,171**	**412**
BRE LOAD CASE (1 or 2)								1

Auxiliary Line Force OK
Extraction Force OK
Penetration Force OK
Front Foot Pad Force OK
Rear Foot Pad Force OK

E.G.T. VD110	Weight (kg) / Load (kgf)	Distance to CL rotation (m)	Horizontal moment (kNm)	Force (kN)	Max. (kN)	Foot Pad Area (m2)
Lower Works	1820	-0,306	-5			
Counterweight	0	0,000	0			
Upper Works	850	1,555	13			
Other	0	0,000	0			
Rope / Kelly / Chain Suspended	630	2,005	12			
Machine Weight (kg)	3300	0,615	20			
Auxiliary Line (kgf)	0	0,000	0	0,00	0,00	
Net Extraction Force (kgf)	0	2,005	0	0,00	60,00	
Net Penetration Force (kgf)	-1547	2,005	-30	9,00	20,00	
Front Foot Pads Loading (kgf)	0	1,550	0	0,00	60,00	0,830
Rear Foot Pads Loading (kgf)	0	-0,782	0	0,00	45,00	0,314
Others	0	0,000	0			
Track Total Loading (kgf)	1753	-0,613	-11			

Track Bearing Length (m)	1,400
Track Width Centres (m)	0,900
Track pad width (m)	0,230

Mode : Drill Rig Penetrating

Relative Angle - Upper Body and Tracks (degrees)	Bearing pressure at front of L.H. track (kN/m^2)	Bearing pressure at rear of L.H. track (kN/m^2)	Bearing pressure at front of R.H. track (kN/m^2)	Bearing pressure at rear of R.H. track (kN/m^2)	Max Track loading dimensions: ecc (m)	Max Track loading dimensions: Bearing Len. (m)	Transformation from triangular or trapizoidal to an equivalent rectangular pressure distribution under track maintaining the load centriod – Equivalent Bearing L (m)	Equivalent Bearing Q (KPa)
0	0	287	0	287	-0,613	0,260	0,174	215
0	0	287	0	287	-0,613	0,260	0,174	215
0	0	287	0	287	-0,613	0,260	0,174	215
0	0	287	0	287	-0,613	0,260	0,174	215
0	0	287	0	287	-0,613	0,260	0,174	215
0	0	287	0	287	-0,613	0,260	0,174	215
0	0	287	0	287	-0,613	0,260	0,174	215

	L (m)	Q (KPa)
Front Foot Pads Equivalent Length (m)and Bearing Pressure (kN/m^2)	3,608	0
Rear Foot Pads Equivalent Length (m)and Bearing Pressure (kN/m^2)	1,365	0
Maximum Equivalent Design Values	0,174	215
BRE LOAD CASE (1 or 2)		2

Auxiliary Line Force OK
Extraction Force OK
Penetration Force OK
Front Foot Pad Force OK
Rear Foot Pad Force OK

E.G.T. VD110	Weight (kg) / Load (kgf)	Distance to CL rotation (m)	Horizontal moment (kNm)
Lower Works	1820	-0,306	-5
Counterweight	0	0,000	0
Upper Works	850	1,555	13
Other	0	0,000	0
Rope / Kelly / Chain Suspended	630	2,005	12
Machine Weight (kg)	3300	0,615	20

				Force (kN)	Max. (kN)	Foot Pad Area (m2)
Auxiliary Line (kgf)	0	0,000	0	0,00	0,00	
Net Extraction Force (kgf)	4161	2,005	82	47,00	60,00	
Net Penetration Force (kgf)	0	2,005	0	0,00	20,00	
Front Foot Pads Loading (kgf)	-6116	1,550	-93	60,00	60,00	0,830
Rear Foot Pads Loading (kgf)	0	-0,782	0	0,00	45,00	0,314
Others	0	0,000	0	Track Bearing Length (m)		1,400
Track Total Loading (kgf)	1345	0,662	9	Track Width Centres (m)		0,900
				Track pad width (m)		0,230

Mode : Drill Rig Extracting

Relative Angle - Upper Body and Tracks (degrees)	Bearing pressure at front of L.H. track (kN/m^2)	Bearing pressure at rear of L.H. track (kN/m^2)	Bearing pressure at front of R.H. track (kN/m^2)	Bearing pressure at rear of R.H. track (kN/m^2)	Max Track loading dimensions: ecc (m)	Max Track loading dimensions: Bearing Len. (m)	Equivalent Bearing L (m)	Equivalent Bearing Q (KPa)
0	508	0	508	0	0,662	0,113	0,075	381
0	508	0	508	0	0,662	0,113	0,075	381
0	508	0	508	0	0,662	0,113	0,075	381
0	508	0	508	0	0,662	0,113	0,075	381
0	508	0	508	0	0,662	0,113	0,075	381
0	508	0	508	0	0,662	0,113	0,075	381
0	508	0	508	0	0,662	0,113	0,075	381
Front Foot Pads Equivalent Length (m)and Bearing Pressure (kN/m^2)							3,608	72
Rear Foot Pads Equivalent Length (m)and Bearing Pressure (kN/m^2)							1,365	0
Maximum Equivalent Design Values							0,075	381
BRE LOAD CASE (1 or 2)								2

Transformation from triangular or trapizoidal to an equivalent rectangular pressure distribution under track maintaining the load centriod

Auxiliary Line Force OK
Extraction Force OK
Penetration Force OK
Front Foot Pad Force OK
Rear Foot Pad Force OK

E.G.T. VD110	Weight (kg) / Load (kgf)	Distance to CL rotation (m)	Horizontal moment (kNm)	Force (kN)	Max. (kN)	Foot Pad Area (m2)
Lower Works	1820	-0,306	-5			
Counterweight	0	0,000	0			
Upper Works	850	1,555	13			
Other	0	0,000	0			
Rope / Kelly / Chain Suspended	630	2,005	12			
Machine Weight (kg)	3300	0,615	20			
Auxiliary Line (kgf)	0	0,000	0	0,00	0,00	
Net Extraction Force (kgf)	0	2,005	0	0,00	60,00	
Net Penetration Force (kgf)	0	2,005	0	0,00	20,00	
Front Foot Pads Loading (kgf)	0	1,550	0	0,00	60,00	0,830
Rear Foot Pads Loading (kgf)	0	-0,782	0	0,00	45,00	0,314
Others	0	0,000	0	Track Bearing Length (m)		1,400
Track Total Loading (kgf)	3300	0,615	20	Track Width Centres (m)		0,900
				Track pad width (m)		0,230

Mode : Drill Rig Other

Relative Angle - Upper Body and Tracks (degrees)	Bearing pressure at front of L.H. track (kN/m^2)	Bearing pressure at rear of L.H. track (kN/m^2)	Bearing pressure at front of R.H. track (kN/m^2)	Bearing pressure at rear of R.H. track (kN/m^2)	Max Track loading dimensions: ecc (m)	Max Track loading dimensions: Bearing Len. (m)	Transformation from triangular or trapizoidal to an equivalent rectangular pressure distribution under track maintaining the load centroid — Equivalent Bearing L (m)	Equivalent Bearing Q (KPa)
0	549	0	549	0	0,615	0,256	0,171	412
0	549	0	549	0	0,615	0,256	0,171	412
0	549	0	549	0	0,615	0,256	0,171	412
0	549	0	549	0	0,615	0,256	0,171	412
0	549	0	549	0	0,615	0,256	0,171	412
0	549	0	549	0	0,615	0,256	0,171	412
0	549	0	549	0	0,615	0,256	0,171	412
Front Foot Pads Equivalent Length (m)and Bearing Pressure (kN/m^2)							3,608	0
Rear Foot Pads Equivalent Length (m)and Bearing Pressure (kN/m^2)							1,365	0
			Maximum Equivalent Design Values				0,171	412
				BRE LOAD CASE (1 or 2)				1

Auxiliary Line Force OK
Extraction Force OK
Penetration Force OK
Front Foot Pad Force OK
Rear Foot Pad Force OK

Schedule of Piling Rig Component Weights, Dimensions, Forces and Pressures

Rig Manufacturer :	**E.G.T.**	**Rig Type :**	**VD110**
	Operation mode:	**Drill Rig**	
Completed by: **R. Savi**	**21/02/2018**	**Checked by:**	**0**

Item	**Mass (kg)**	**Moment arm (m)**	**Moment (kNm)**
UPPER WORKS	**850**	**1,56**	**12,97**
LOWER WORKS	**1820**	**-0,31**	**-5,46**
ROTARY SUSPENDED EQUIPMENT	**630**	**2,01**	**12,39**
COUNTERWEIGHT	**0**	**0,00**	**0,00**
OTHER	**0**	**0,00**	**0,00**
TOTAL	**3300**	**0,61**	**19,89**

Tracks			
Track bearing length (m)	1,4		
Track pad width (m)	0,23		
Distance between centrelines of tracks (m)	0,9		
Front Foot Pads			
Pad Bearing Area (m^2)	0,83	Actual Dimensions	0,2 dia + 0,487x0,47 foot
Pad Maximum Loading (kN)	60,00	Actual Shape	round plus square
Pad Moment Arm (m)	1,55		
Rear Foot Pads			
Pad Bearing Area (m^2)	0,31	Actual Dimensions	0,2 dia
Pad Maximum Loading (kN)	45,00	Actual Shape	round
Pad Moment Arm (m)	-0,78		
Forces			
Maximum Extraction Force (kN)	60,00		
Maximum Penetration Force (kN)	20,00		
Maximum Auxillary Force (kN)	0,00	Auxillary Force Moment Arm (m)	0,00

Pressure Summary for Platform Design (unfactored)

MODE	BRE LOAD CASE (1 or 2)	Length (m)	Width (m)	UDL Pressure (kPa)
Standing	1	0,19	0,23	459
Travelling	1	0,19	0,23	459
Handling	1	0,17	0,23	412
Penetrating	2	0,17	0,23	215
Extracting	2	0,08	0,23	381
Other	NOT USED	N/A	0,23	N/A

MODE	WARNING MESSAGES	ERROR MESSAGES FOR FORCES		
Standing	None	Auxiliary Line Force OK	Extraction Force OK	Penetration Force OK
Travelling	None	Auxiliary Line Force OK	Extraction Force OK	Penetration Force OK
Handling	None	Auxiliary Line Force OK	Extraction Force OK	Penetration Force OK
Penetrating	None	Auxiliary Line Force OK	Extraction Force OK	Penetration Force OK
Extracting	None	Auxiliary Line Force OK	Extraction Force OK	Penetration Force OK
Other	None	Auxiliary Line Force OK	Extraction Force OK	Penetration Force OK

MODE	ERROR MESSAGES FOR FOOT PADS	
Standing	Front Foot Pad Force OK	Rear Foot Pad Force OK
Travelling	Front Foot Pad Force OK	Rear Foot Pad Force OK
Handling	Front Foot Pad Force OK	Rear Foot Pad Force OK
Penetrating	Front Foot Pad Force OK	Rear Foot Pad Force OK
Extracting	Front Foot Pad Force OK	Rear Foot Pad Force OK
Other	Front Foot Pad Force OK	Rear Foot Pad Force OK

Notes

Only for rig operation on level ground with a vertical mast, unless noted below !

Only for use where the rig is working on a ground supported platform !

Foot pad pressures are adjusted to equalise with the track pressures !

Rigs to be operated in accordance with manufacturer's & employer's instructions

flat ground required
mast foot on the ground while drilli
vertical mast while drilling

EGT

FPS